

Appendix B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Magnus GOERTZ

Atty. Ref.: 3682-32

Serial No. Unassigned

Group:

Filed: December 10, 2002

Examiner:

For: USER INTERFACE

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December 10, 2002

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

In order to place the above-identified application in better condition for examination, please amend the application as follows:

IN THE CLAIMS

Please substitute the following amended claim(s) for corresponding claim(s) previously presented. A copy of the amended claim(s) showing current revisions is attached.

9. (Amended) User interface according to Claim 7, characterised in, that, a navigation in said list is performed by moving said object in a direction towards the top of said list or towards the bottom of said list, that the movement of said object will cause said marking to move in the same direction, and that the speed of the movement of said marking is lower than the speed of the movement of said object.

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12. (Amended) User interface according to Claim 1, characterised in, that an active application, function, service or setting is moved on one step by moving said object from the left of said display area to the right of said display area, and that the active application, function, service or setting is closed or backed one step by moving said object from the right of said display area to the left of said display area.

13. (Amended) User interface according to Claim 1, characterised in, that said menu area is positioned at the bottom of said touch sensitive area, that said representation of said first function is positioned at the left side of said menu area, that said representation of said second function is positioned at the middle of said menu area, and that said representation of said third function is positioned at the right side of said menu area.

14. (Amended) User interface according to Claim 1, characterised in, that said user interface is adapted to a touch sensitive area with a size that is in the order of 2-3 inches, and that said user interface is adapted to be operated by one hand, where said object can be a finger, such as the thumb, or a user of said computer unit.

15. (Amended) An enclosure adapted to cover a computer unit, said computer unit being adapted to present a user interface according to Claim 1, characterised in, that

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said enclosure is provided with an opening for said display area, and that a representation of said menu area is printed on top of said enclosure.

17. (Amended) A computer readable medium, with a computer program product stored therein, characterised in, that said computer program product comprises computer readable code, which, when read by a computer, will make it possible for said computer to present a user interface according to Claim 1.

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REMARKS

This Preliminary Amendment has been presented to place the claims in condition for allowance.

Attached hereto is a marked-up version of the changes made to the specification and claim(s) by the current amendment. The attached page(s) is captioned "**Version With Markings To Show Changes Made.**"

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

9. (Amended) User interface according to Claim 7 [or 8], characterised in, that, a navigation in said list is performed by moving said object in a direction towards the top of said list or towards the bottom of said list, that the movement of said object will cause said marking to move in the same direction, and that the speed of the movement of said marking is lower than the speed of the movement of said object.

12. (Amended) User interface according to [any preceding] Claim 1, characterised in, that an active application, function, service or setting is moved on one step by moving said object from the left of said display area to the right of said display area, and that the active application, function, service or setting is closed or backed one step by moving said object from the right of said display area to the left of said display area.

13. (Amended) User interface according to [any preceding] Claim 1, characterised in, that said menu area is positioned at the bottom of said touch sensitive area, that said representation of said first function is positioned at the left side of said menu area, that said representation of said second function is positioned at the middle of said menu area, and that said representation of said third function is positioned at the right side of said menu area.

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14. (Amended) User interface according to [any preceding] Claim 1, characterised in, that said user interface is adapted to a touch sensitive area with a size that is in the order of 2-3 inches, and that said user interface is adapted to be operated by one hand, where said object can be a finger, such as the thumb, or a user of said computer unit.

15. (Amended) An enclosure adapted to cover a computer unit, said computer unit being adapted to present a user interface according to [any of Claims] Claim 1 [to 14], characterised in, that said enclosure is provided with an opening for said display area, and that a representation of said menu area is printed on top of said enclosure.

17. (Amended) A computer readable medium, with a computer program product stored therein, characterised in, that said computer program product comprises computer readable code, which, when read by a computer, will make it possible for said computer to present a user interface according to [any of Claims] Claim 1 [to 14].

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USER INTERFACE

Technical field

The present invention relates to a user interface for a mobile handheld
5 computer unit, which computer unit comprises a touch sensitive area, and which
touch sensitive area is divided into a menu area and a display area.

The computer unit is adapted to run several applications simultaneously
and to present any active application on top of any other application on the display
area.

10 The present invention also relates to an enclosure for a handheld
computer unit.

The present invention also relates to a computer readable medium. A
computer program product with computer program code is stored within the
computer readable medium, which code, when read by a computer, will make it
15 possible for this computer to present a user interface according to the invention.

Description of background art

Mobile handheld computers are known in various embodiments. One kind
of handheld computer is the personal digital assistant (PDA), which is getting more
20 and more powerful.

Another kind of handheld computer unit is the mobile phone, which also is
getting more and more powerful. There are also examples of where the mobile
phone and the PDA are merging into one unit.

A third kind of handheld computer is the laptop computer, which is getting
25 smaller and smaller, even competing in size with the PDA's.

The need to manage more information has led the development towards
new solutions regarding user interfaces and navigation. The PDA's and mobile
phones are getting larger and larger in order to provide a user-friendly interface.

30 Since the users have gotten used to small handheld units, it is hard to
move towards larger units. This has led to foldable keyboards, different kinds of joy
sticks and different kinds of touch sensitive displays and pads intended to help in
providing a user interface that is suitable for small handheld compute units.

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Summary of the present invention**Technical problems**

It is a problem to provide a user-friendly interface that is adapted to handle
 5 large amount of information and different kinds of traditional computer-related
 applications on a small handheld computer unit.

It is a problem to provide a user interface that is simple to use, even for
 inexperienced users of computers or handheld devices.

It is a problem to provide a small handheld computer unit with an easily
 10 accessible text input function.

It is also a problem to provide a simple way to make the most commonly
 used functions for navigation and management available in the environment of a
 small handheld computer unit.

15 Solution

Taking these problems into consideration, and with the starting point from a
 user interface for a mobile handheld computer unit, which computer unit comprises
 a touch sensitive area, which touch sensitive area is divided into a menu area and
 a display area, which computer unit is adapted to run several applications
 20 simultaneously and to present an active application on top of any other application
 on the display area, the present invention teaches that the menu area is adapted
 to present a representation of a first, a second and a third predefined function,
 where the first function is a general application dependent function, the second
 function is a keyboard function, and the third function is a task and file manager.
 25 The present invention also teaches that any one of these three functions can be
 activated when the touch sensitive area detects a movement of an object with its
 starting point within the representation of the function on the menu area and with a
 direction from the menu area to the display area.

With the purpose of providing a simple way of managing any application or
 30 the operations system, the present invention teaches that if the first function is
 activated, the display area is adapted to display icons representing services or
 settings, depending on the current active application. One of the icons always
 represents a "help"-service, regardless of application. The icons are adapted to
 represent services or settings of the operations system of said computer unit, such

as background picture, clock, users, help, etc. if no application is currently active on the computer unit.

Selections of preferred service or setting is done by tapping on corresponding icon.

5 With the purpose of providing the access to a text input function in any application in the computer unit, the present invention teaches that when the second function is activated, the display area is adapted to display a keyboard and a text field,

If a text passage in an active application is highlighted, then this text passage is displayed in the text field for editing through the keyboard and that the highlighted text passage is replaced by the edited text passage when the second function is deactivated.

If no text passage in an active application is highlighted, then the text field is available for inputting and editing of text through the keyboard.

15 In the case of the latter the first function can be activated, or the second
function can be closed, in which a choice of saving or deleting the inputted text is
given. The choice of saving the inputted text results in an activation of the first
function. In this case the first function will present services or settings available for
the inputted text, such as saving the inputted text for later use, using the inputted
20 text as telephone number in a telephone application, or sending the inputted text
as message in communications application.

In order to provide a task and file management in a user interface for a handheld mobile computer, the present invention teaches that, if the third function is activated, the display area is adapted to display a list with a library of available applications and files on the computer unit. A selection of an application will start the application, and a selection of a file will open the file in an application intended for the file.

A selection of an application or a file is done by moving the object so that the representation of desired application or file is highlighted, removing the object from the touch sensitive area, and then tapping on the touch sensitive area.

According to the present invention a navigation in the list is performed by moving the object in a direction towards the top of the list or towards the bottom of the list. This will cause the marking to move in the same direction. The speed of

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Figure 12 is a schematic illustration of moving backwards in, or closing, an application;

Figure 13 is a schematic illustration of an enclosure

Description of embodiments at present preferred

5 Figure 1 illustrates a user interface for a mobile handheld computer unit. The user interface according to the present invention is specifically adapted to computer units comprising a touch sensitive area 1, which is divided into a menu area 2 and a display area 3. It should be understood that there are several different kinds of known touch sensitive displays and that the present invention
10 does not depend on what kind of touch sensitive display that is used in relation to the inventive user interface.

The computer unit is adapted to run several applications simultaneously and to present an active application on top of any other application on the display area 3. It should be understood that by simultaneously it is meant any technology
15 that will make it appear to a user of the computer unit that applications are run simultaneously and that the present invention does not depend on how this is realised, whether it is through time-sharing of one processor, parallel use of several processors, or any other technique.

According to the present invention the menu area 2 is adapted to present
20 a representation of a first 21, a second 22 and a third 23 predefined function.

The first function 21 is a general application dependent function, the second function 22 is a keyboard function, and the third function 23 is a task and file manager.

Figure 2 shows that any one of these three functions 21, 22, 23 can be
25 activated when the touch sensitive area 1 detects a movement of an object 4 with its starting point A within the representation of a function on the menu area 2 and with a direction B from the menu area 2 to the display area 3.

Figure 3 shows that if the first function 21 is activated, then the display area 3 is adapted to display icons 211, 212, 213, 214, 215, 216 representing
30 services or functions depending on the current active application. One of the icons, in the figure exemplified by icon 211, always represents a "help"-service, regardless of application. Any key that, because of lack of space on the display area, or because the key should be hidden from the active application, or because

of any other reason is not shown on the display area of an active application, can be represented by one of the icons 212, 213, 214, 215, 216 that is shown when the first function 21 is activated.

If for instance the active application handles a picture, then the icons that
5 are shown when the first function is activated can be services such as "save to
disk", "send as SMS", or "delete" and they can be settings such as "resolution",
"colour", or "brightness".

If no application is currently active on the computer unit, then the icons 211, 212, 213, 214, 215, 216 are adapted to represent services or settings of the operations system of the computer unit, such as background picture, clock, alarm 215, users 213, help 211, etc.

Figure 4 shows that selection of a preferred service or setting is done by tapping C, D on corresponding icon 213.

Figure 5 shows that if the second function 22 is activated, then the display
15 area 3 is adapted to display a keyboard 221 and a text field 222.

Two different scenarios can be at hand when this function key is activated. A first scenario can be that a text passage in the active application is highlighted as the second function is activated. If this is the case then the highlighted text passage is displayed in the text field 222 for editing through the keyboard 221.

The highlighted text passage is replaced by the edited text passage when the second function 21 is deactivated.

A second scenario can be that no text passage in the active application is highlighted. If this is the case then the text field 222 is available for inputting and editing of text through the keyboard 221.

In the case of the latter scenario, the first function 21 can be activated, or the second function 22 can be closed. If the second function 22 is closed then a choice of saving or deleting the inputted text is given, where the choice of saving the inputted text results in an activation of the first function 21.

30 As the first function 21 is activated with the second function 22 as currently active application the first function 21 will present services or settings available for the inputted text, such as saving the inputted text for later use, using the inputted text as telephone number in a telephone application, or sending the inputted text as message in communications application, such as e-mail, SMS, or fax.

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Figure 6 shows that if the third function 23 is activated, then the display area 3 is adapted to display a list 231 with a library of available applications and files on the computer unit.

A selection of an application will start the application, and a selection of a
 5 file will open the file in an application intended for the file. The name of a selected file can be edited by activation of the second function 22 as the file is highlighted.

Figure 7 shows that a selection of an application or a file is done by moving E the object 4 so that the representation of desired application or file is highlighted, removing F the object 4 from the touch sensitive area 1, and then
 10 tapping G, H on the touch sensitive area 1.

An application or file is highlighted by placing some kind of marking 232 on the representation of the application or file. This marking can be done in different ways, for example by putting a frame around the representation of the application or file, as shown in the figure, or by inverting the representation of the application
 15 or file.

It should be understood that all lists in the computer unit, such as a list of contact information in an address book, a list of e-mail messages in a mailbox, or a telephone log, can be managed in the above described manner.

The list 231 can be adapted to present only files or only applications. In
 20 this case, the top area of the list 231 can present a field 233 through which the content of the list 231 can be altered. If the list only presents files, then the field 233 can display a representation of a task manager and a selection of the field 233 will cause the list 231 to alter to present only applications, and if the list 231 only presents applications, then the field 233 displays a representation of a file
 25 manager and a selection of the field 233 will cause the list 231 to alter and present only files.

Figure 8 shows that navigation in the list is performed by moving the object 4 in a direction I towards the top 231a of the list 231 or towards J the bottom 231b of the list 231. This movement I, J of the object 4 will cause the marking 232
 30 to move K, L in the same direction. The speed of the movement K, L of the marking 232 is lower than the speed of the movement I, J of the object 4.

Figure 9 shows that if the number of applications and/or files in the list 231 exceeds the number of applications and/or files that can be presented on the display area 3, and if the object 4 is moved to the top or bottom position of the

According to one preferred embodiment of the present invention the computer unit is covered with an enclosure 5, which is provided with an opening 51 for the display area 3, and where the representations of the menu area 2 is printed on top of the enclosure 5. It should be understood that the opening 51 might be a transparent part of the enclosure 5 or that it might be an open aperture depending on among other things technical considerations pertaining to the touch sensitive area 1.

This makes it possible to allow the enclosure 5 to be removable and exchangeable.

Figure 14 shows a computer readable medium, in the figure schematically shown as a solid-state memory 61. A computer program product is stored within the computer readable medium. This computer program product comprises computer readable code 62, which, when read by a computer 6, will make it possible for the computer 6 to present a user interface according to the present invention.

The present invention also teaches that the computer program product is adapted to function as a shell upon an operations system.

It will be understood that the invention is not restricted to the
aforescribed and illustrated exemplifying embodiments thereof, and that these
20 embodiments can be modified within the scope of the inventive concept illustrated
in the accompanying Claims.

CLAIMS

1. User interface for a mobile handheld computer unit, where said computer unit comprises a touch sensitive area, which touch sensitive area is divided into a menu area and a display area, where said computer unit is adapted to run several applications simultaneously, and to present an active application on top of any other application on said display area, **characterised** in, that said menu area is adapted to present a representation of a first, a second and a third predefined function, that said first function is a general application dependent function, that said second function is a keyboard function, that said third function is a task and file manager, and that any one of said three functions can be activated when said touch sensitive area detects a movement of an object with its starting point within the representation of said function on said menu area and with a direction from said menu area to said display area.

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2. User interface according to Claim 1, **characterised** in, that, if said first function is activated, said display area is adapted to display icons representing different services or settings depending on the current active application, that one of said icons always represents a "help"-service, regardless of application, and that, if no application is currently active on said computer unit, said icons are adapted to represent services or settings of the operations system of said computer unit, such as background picture, clock, users, help, etc.

3. User interface according to Claim 2, **characterised in**, that that a selection
25 of a preferred service or setting is done tapping on corresponding icon.

4. User interface according to Claim 1, **characterised** in, that, if said second function is activated, said display area is adapted to display a keyboard and a text field,

30 - that, if a text passage in said active application is highlighted, said text passage is displayed in said text field for editing through said keyboard and that said highlighted text passage is replaced by said edited text passage when said second function is deactivated, and

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8. User interface according to Claim 7, **characterised** in, that said list is adapted to present only said files or only said applications, that the top area of said list presents a field through which the content if said list can be altered, that, if said list only presents files, said field displays a representation of a task manager

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and a selection of said field will cause said list to alter to present only applications, and that, if said list only presents applications, said field displays a representation of a file manager and a selection of said field will cause said list to alter and present only files.

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9. User interface according to Claim 7 or 8, **characterised** in, that, a navigation in said list is performed by moving said object in a direction towards the top of said list or towards the bottom of said list, that the movement of said object will cause said marking to move in the same direction, and that the speed of the movement of said marking is lower than the speed of the movement of said object.

10. User interface according to Claim 9, **characterised** in, that, if the number of applications and/or files in said list exceeds the number of applications and files that can be presented on said display area, and if said object is moved to the top or bottom position of said display area, then lifted, replaced on said display area, and again moved to the top or bottom of said display area, the content of said display area will be replaced one whole page, meaning that if said object is position at the bottom of said display area, then lifted, replaced on said display area, and then again moved to the bottom of said display area, the content of said display area will be replaced by the following applications and/or files in said list, and if said object is position at the top of said display area, then lifted, replaced on said display area, and then again moved to the top of said display area, the content of said display area will be replaced by the preceding applications and/or files in said list.

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11. User interface according to Claim 10, **characterised** in, that if said object is removed from a first position on said display area and then replaced on a second position on said display area, said navigation can be continued from said second position.

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12. User interface according to any preceding Claim, **characterised** in, that an active application, function, service or setting is moved on one step by moving said object from the left of said display area to the right of said display area, and that the active application, function service or setting is closed or backed one step

